5.4 Conduct a safety audit in your community

Objective: To reduce the number of crashes and reduce speed along local streets or rural arterials.

Description: A road safety audit will examine the reasons behind speed problems. The audit, done in conjunction with the MaineDOT, provides an opportunity to collect valuable roadway data that can be used to determine the root causes of the issue and allow for an analysis of possible solutions.

The road safety audit is conducted by members of the community, other stakeholders, MaineDOT, and the Federal Highway Administration. The audit consists of the following steps:

- Gather and review relevant roadway data. This includes gathering crash data (either from local law enforcement or from MaineDOT) to identify the types and number of crashes occurring along a particular roadway, speed data, inventory of signs and pavement markings, roadway plans or aerials, and any other relevant roadway data (including adjacent land use information).

- Conduct a field visit. The best way to validate roadway data and to look for other possible root causes of issues is to conduct a field visit along the roadway of concern. This should only be done in the presence of local law enforcement or with guidance of MaineDOT. Participants are encourages to mark up roadway plans or maps, noting placement and condition of signs, pavement markings, lighting, and also to make observations of how vehicle traffic is using this section of roadway (driving too fast, not heeding warning signs, etc.). This information should be carefully recorded and added to the roadway data collected.

- Determine root causes. It makes no sense to apply solutions of the root cause is not identified. Using the data collected in Steps 1 and 2, make practical assumptions as to the cause of the issue (e.g. Vehicles are being struck because there is limited sight distance at an intersection). MaineDOT and FHWA professionals can assist in this effort.

- Identify a range of solutions. Sometimes it takes more than one try to solve a problem. Don't just identify a single solution – often a range of solutions provide the best approach to solving the problem. Solutions can also be categorized by cost (low, medium, high), and by who can implement (local community, MaineDOT, FHWA).

Results of a road safety audit should be well documented for future reference and for use in other communities.

5.5 Adopt performance standards, including for signs, parking, internal circulation and landscaping, for highway-oriented development

Objective: To preserve the visual quality of highway corridors while promoting development within designated growth areas.

Description: Visual quality of highway corridors changes with development, but it need not be seriously degraded. In addition to limiting the amount of strip commercial development (see **1.1 Contain development within limited growth area boundaries**) and preserving scenic corridors (see **5.6 Conduct a visual assessment and adopt scenic corridor standards**), a town can subject highway development to basic standards that simultaneously preserve visual quality and lessen pressures on the transportation system.

Performance standards for highway-oriented development typically are incorporated into the performance standard section of a zoning ordinance. Most standards should apply to all development in the corridor, although some may apply specifically to large-scale development or development that generates large volumes of traffic. Two publications from the State Planning Office can walk you through the details: How to Write a Land Use Ordinance and Performance Standards for Large-Scale Development.

The standards address, among other things:

- The location of parking – for example, limiting parking in the front of the building to 10% of the total, or up to 50% if there is adequate screening from the public way; and, for large-scale developments, requiring segmentation of parking areas into smaller sections.

- Internal circulation – for example, to provide logical automobile connection between adjacent principal buildings, whether on the same or separate parcels; to provide safe pedestrian connections between parking and buildings and between principal buildings; and, where bus or other transit is available, to provide for safe and convenient drop-off and pick-up spots.

- Landscaping – for example, providing plantings along the street front, in islands that separate parking sections, and along pedestrian and bike ways to help separate and define them.

- Signs – for example, limiting the number and cumulative area of sign faces to avoid highway clutter.

- Lighting – for example, limiting pole heights, requiring cut-offs that prevent spillover to the public way, and prescribing low-profile lights for pedestrian paths.

See Figure B-11 for a sampling of details.

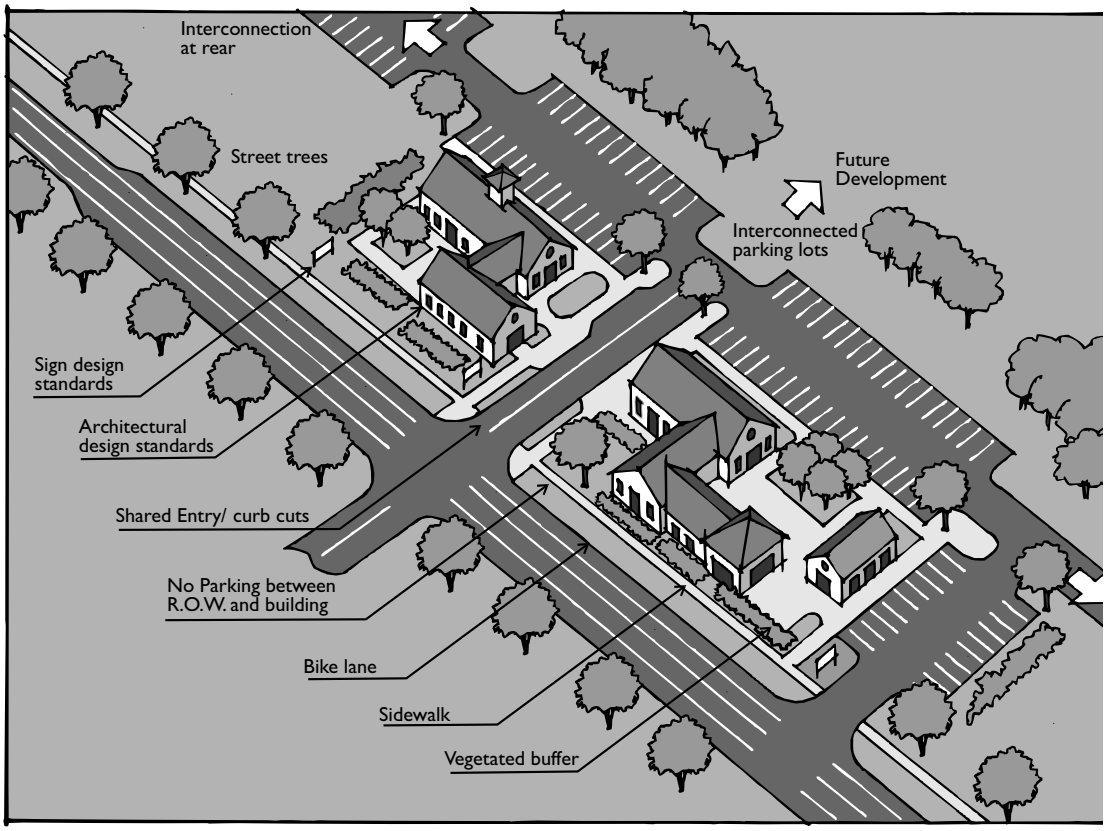

Figure B-11. Improving highway commercial design

5.6 Conduct a visual assessment and adopt view corridor standards

Objective: To create a foundation for saving special views that give a community or corridor its identity and "brand."

Description: A visual assessment can create a summary of where special views exist, what opportunities to preserve views are available, and what standards a community should adopt to preserve these views.

The following steps should be taken as part of a community visual assessment

- Preparation meeting. This meeting can be used to orient participants on what defines a special or significant views, and define and review inventory checklists.
- Inventory views. Identify desirable and undesirable views within a community. These views may be along rural roadways, within a downtown or village, or at the transitional areas (between downtown and rural areas).
- Conduct Analysis. Primary goal of the analysis is to characterize areas according to the following: Preserve (maintain); Enhance (allow changes to improve or screen uses) and Mitigate – provide new scenic elements or remove existing eyesores. It is recommended that a visual analysis be conducted by a registered landscape architect in collaboration with community participants and municipal leaders. See Figure B-12.
- Prepare and Adopt View Corridor Standards. Based on the findings of the inventory and analysis, communities should adopt view corridor standards to address views that can be preserved, enhanced, and mitigated. The Maine State Planning office has sample standards for community use in: Protecting Local Scenic Resources: Community-Based Performance Standards. The visual assessment conducted by Holly Dominie for Gateway 1 (the 100-mile transportation-land use project in Mid-Coast Maine) includes a useful chapter on implementation (chapter 8 of Gateway 1 Visual Resource Assessment).

Purpose statement from the Route 7 Scenic Overlay District, Charlotte, VT

TABLE 2.9 ROUTE 7 SCENIC OVERLAY DISTRICT (R7O)

(A) Purpose. The purpose of the Route 7 Scenic Overlay District is to protect scenic resources within a designated area along the Route 7 corridor which are identified in the Charlotte Town Plan as special features. The scenic resources of this section of the corridor are significant because of the high level of public and private investment in conservation in this area, the openness of both easterly and westerly views to mountains, lake and fields, the importance of Route 7 as a major transportation artery and the additional importance of agricultural and historic resources in this area.

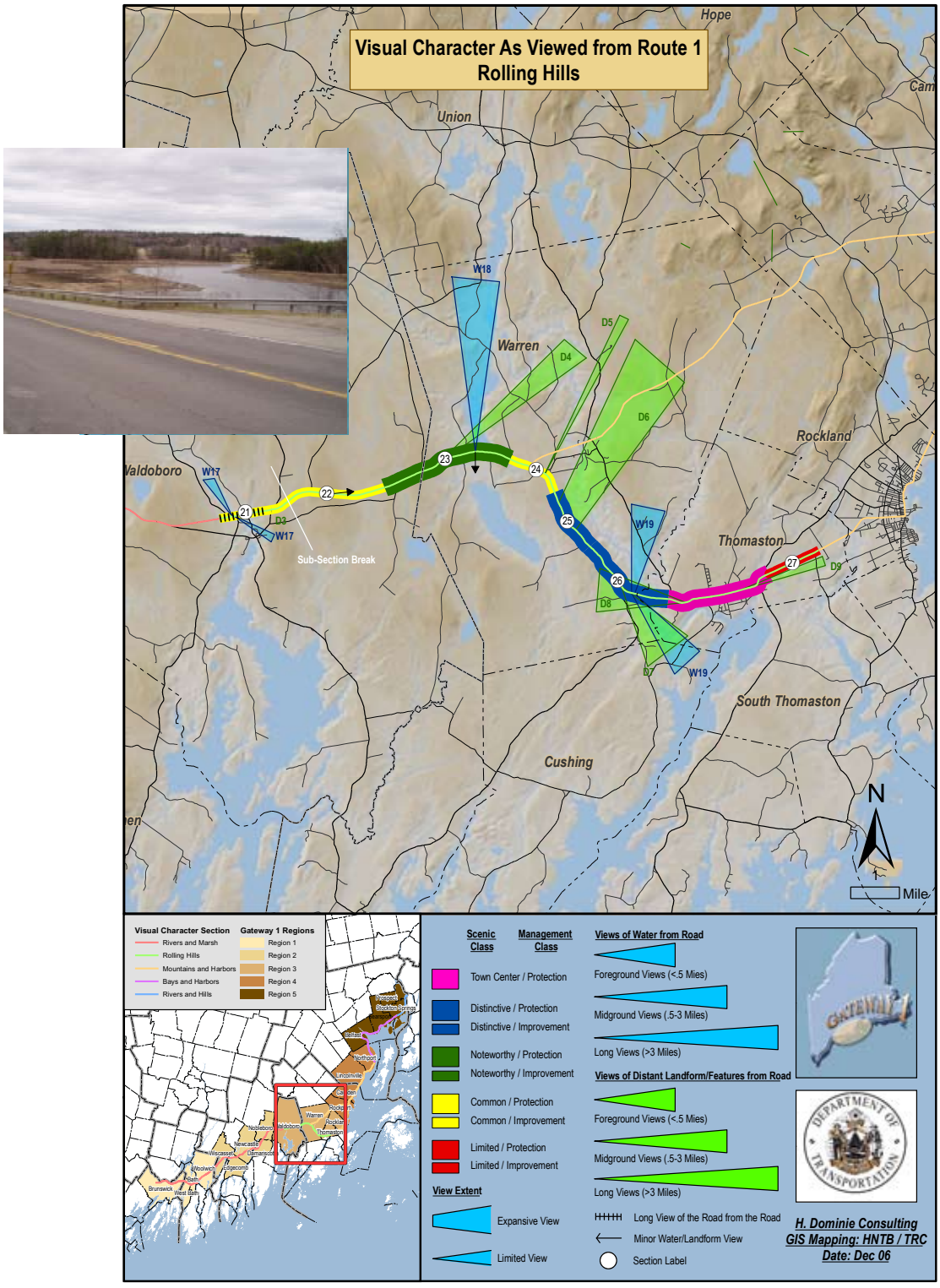

Figure B-12. Example of road corridor visual assesment map (Route 1 from Waldoboro to Thomaston)

Source: H. Dominie Consulting and Gateway 1

5.7 Incorporate BMPs for erosion control and stormwater management into subdivision and site plan review ordinances

Objective: To enable extension of the transportation network and parking facilities without compromising water quality.

Description: State law requires developments that disturb one or more acres of vegetated land to meet standards for erosion control and stormwater management. Often, this one-acre threshold is triggered as the result of a new street serving a subdivision or a new or expanded parking lot. Municipalities should incorporate reference to these rules and the best management practices (BMPs) manuals published by the State into local subdivision and site plan review ordinances. This will both assure consistency between local and state rules and address projects that may not trigger state permitting but still warrant use of BMPs.

The State laws, rules, and related BMP manuals are:

- Maine Stormwater Management Law, Title 38, M.R.S.A. § 420-D
  - Stormwater Management Rule, Chapter 500, Maine Department of Environmental Protection
  - Urban Impaired Streams Rule, Chapter 502, Maine Department of Environmental Protection

- Maine Erosion and Sediment Control Law, Title 38, M.R.S.A., § 420-C
  - Maine Erosion and Sediment Control Best Management Practices, published by the Maine Department of Environmental Protection

Sample Subdivision Ordinance Language for Erosion Control Plan

An erosion and sedimentation control plan consistent with the Maine Erosion and Sediment Control Law, Title 38, M.R.S.A., § 420-C, as the same may be amended from time to time, and employing the applicable best management practices as described in "Maine Erosion and Sediment Control Best Management Practices," published by the Maine Department of Environmental Protection.

Some municipalities in Maine are designated as Small Municipal Separated Storm Sewer System communities (or MS4s for short). These communities are part of the Portland, Bangor, Lewiston-Auburn, and Kittery-Portsmouth urbanized areas, and they are required under the Clean Water Act to regulate the flow of storm water that enters their storm sewer systems (including open drainage channels). In addition to updating their local land use regulations with proper references to the rules and BMPs above, they will be required, starting in 2009, to monitor the performance of the BMPs over time. A model post-construction storm water monitoring ordinance is available from the Maine Department of Environmental Protection.

5.8 Assure proper design of culverts for streams with fish populations

Objective: To build stream crossings that do not interrupt the routine passage of fish and other aquatic organisms.

Description: The crossing of a stream with a road typically requires culverts, and if the stream is habitat for fish, the design and installation of the culvert should comply with standards contained in MaineDOT's Fish Passage Policy and Design Guide.

According to this guide, culverts must (1) protect roads against peak flows, (2) prevent physical barriers to fish, such as a "hanging culvert" that is misaligned with the stream, and (3) assure that the hydraulics – velocity and depth of flow and total length of culvert – meet the needs of fish passage.

The peak flow for which a culvert is designed typically is the 50-year event for lengths of 10 feet or less, and 100-year for larger structures.

Ideally, culverts should reproduce, as nearly as possible, the natural hydraulic conditions of the stream. Velocity of flow through the culvert should not exceed the flow in natural conditions during periods in which fish are moving upstream. The minimum depth of water maintained in the culvert should represent natural low flow conditions when fish may be moving. And the culvert should maintain the channel elevation between the stream bed and pipe at both inlet and outlet so that fish can pass without excessive drops.

Table B-1. Species of Concern

Catadromous Species	Anadromous Species	Freshwater Species
American eel	Rainbow smelt Blueback herring Alewife Atlantic salmon American shad Sea run brook trout Sea run brown trout Sea lamprey	Rainbow smelt Brook trout Brown trout Rainbow trout Landlocked salmon Forage (resident) fish White sucker

Source: MaineDOT, Fish Passage Policy and Design Guide, Dec. 2004